Correct Lubrication

for Tractors

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CORRECT TRACTOR LUBRICATION

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1920

Getting the Most from Mother Earth

The Part Played by Correct Lubrication

With ever-widening markets for their crops, progressive farmers have realized that animal power long ago reached its limit of production.

So they turn to mechanical power, as have men in other industries. With mechanical power they plow deeper, work faster, and cultivate a much bigger acreage.

The tractor has become a standard agricultural implement. It shortens labor.

The World War demonstrated two big things:

1. That mechanical power multiplies crop results.
2. That mechanical power operated and maintained at highest efficiency gets the ultimate out of Mother Earth—at cost per acre far below any ever before recorded.

You know the difference in power results and economy between tractor engines which operate at maximum efficiency and those which are constantly breaking down in service.

Farmers who get the most out of their tractors are those who either through experience or foresighted study have come to a true realization of the importance of Correct Lubrication and the part it plays in efficient economical tractor operation.

The object of this booklet is to show you how, through Correct Lubrication, you can operate your tractor at lowest cost per acre or per hour and thereby get the most from Mother Earth at minimum cost.

Common Sense About Your Tractor Dollars

Costly Penalties Invited by Carelessness and Lack of Knowledge of the Importance of Correct Lubrication

You are about to begin a day's plowing.

Your tractor and plows are ready. The engine is running smoothly.

You climb in, throw the clutch out, engage your gears, and are off.

Do you realize what is taking place inside your tractor engine?

A tractor engine is made up of many moving parts. If these moving parts are permitted to rub without lubrication, disastrous friction that wears away the rubbing surfaces results.

To prevent this wear oil is introduced between the surfaces.

With the correct film of oil, about .003 of an inch thick, the wear is almost wholly removed from the metal parts. The oil film wears. The metal is protected. To form and maintain this film the oil must be of the *correct body* and *character* to meet the lubricating requirements of your engine and of the *highest quality* to withstand the heat of operation.

You cannot picture to yourself 3000° Fahrenheit—the approximate temperature at the instant of explosion in the combustion chambers of your engine. If that heat were permitted to continue unchecked the cylinders would soon be a mass of molten metal. The cooling and lubrication of your engine protect it against this heat.

Hard Plowing

For deep, heavy plowing, where horses might fail, the tractor does the work steadily and surely.

But destructive friction must also be overcome. This task falls to the lubricant. If the oil is either low in *quality* or incorrect in *body*, it breaks down under the intense heat, loses much of its lubricating property, and the metal parts come into contact.

Damage follows—because an engine must either wear out oil or wear out moving parts.

And in addition, your fuel and oil consumption are mounting up by leaps and bounds.

One of the surest ways to invite friction-drag, engine trouble and excessive fuel and oil consumption is carelessness or lack of knowledge in buying lubricating oil.

Here are the reasons:

Maximum power is more than a matter of mechanical adjustment.

If the fuel charge escapes down past the piston rings during the compression stroke of your engine, power goes to waste. If, on the power stroke, the force of combustion escapes past the piston rings, power again goes to waste.

You cannot secure full power unless you maintain a proper piston-ring seal. This demands an oil of the correct body and character to suit the piston clearance in *your* engine.

Saving Time, Labor and Money

One man and a tractor operate a double disc harrow, corrugator, and grain drill.

With the proper piston-ring seal the power of the exploding fuel charge acts with full force on the piston head. Full power results.

Experienced tractor owners and repair men have stated that over 50% of all engine troubles are due to incorrect lubrication.

Among the most common of these troubles is worn bearings.

The problem of bearing lubrication is far from simple. Bearings differ widely in type, size and material. The oiling systems which supply them also differ. Adjustments vary.

Both the *quality* and *body* of the oil must suit these conditions.

Suppose you are forced to replace one of the crank-shaft bearings in your engine. Your bill for this repair alone would be a heavy one. If, by Correct Lubrication, you can avoid the necessity of such an expense, the saving in money will pay several times over for an adequate supply of the *correct lubricant* for your tractor for a year.

Carbon Deposit

Guesswork lubrication causes carbon deposit.

Both the *quality* and *body* of the oil must be considered.

Suppose the body is too light for the piston clearance. Excess oil then works too freely into the combustion chamber. It burns. Carbon deposit forms, resulting in knocking of the engine and costly overhauling and repairs.

The Tractor Does the Work

All the operator has to do is to control the engine and steer the outfit where he wishes.

Excessive Fuel

If the oil's *quality* is low, an excess quantity will be consumed and still the proper film will not be maintained.

If its *body* is incorrect, it may fail to reach and protect all moving parts.

In either case, excessive friction-drag results. Less work is obtained from each gallon of fuel you burn. Your fuel bills mount up.

Scored Cylinder Walls

Scored cylinders frequently result from oil of low lubricating *quality* or oil too light in body. Then the cylinder walls have no protecting films.

Scratching and scoring occurs, resulting in, among other things, loss of power and excess fuel consumption.

Noise

Noise is often a sign of worn parts—resulting from friction. It may be a dull "thump" at every revolution of the crank-shaft. It may be "knocking" of worn piston pins. It may be "hissing" within the cylinders, indicating an incorrect piston-ring seal. It may be "knocking" caused by excessive carbon deposit.

When a comparatively new tractor pounds its way along it is seldom necessary to ask what brought on premature old age. Generally it is undue friction—resulting from incorrect lubricating oil.

Acreage Counts

Acre after acre of corn must be cut. But the tractor does not tire. It does its work quickly and efficiently.

Depreciation

You can figure out at the end of the year how much it costs you to operate your tractor. You know the totals of the various items of operating expense for which you actually paid out money, such as repairs, fuel, oil and accessories.

But how about depreciation?

Depreciation costs may be either large or comparatively small, depending on the use and abuse of a tractor during the course of a year.

Some tractor owners do not yet realize that guesswork lubrication causes decreased efficiency and increased depreciation and sends total yearly expenses up by leaps and bounds. They do not realize that, due to incorrect lubrication and its attendant wear and tear on the engine, they sacrifice maximum service from their tractors and shorten the lives of their engines by years.

They do not realize that metal worn away by friction is gone forever—that worn engines never "come back."

How to Secure the Correct Oil for Your Tractor

When you are buying oil for your tractor DO NOT say, "Give me some oil for my tractor."

You want an oil of the highest *quality* and of the correct *body* and *character* to meet the lubricating requirements of your tractor with scientific exactness.

Ask for that oil and *get* it.

Beginning on page 35 of this booklet you will find the 1920 edition of the Gargoyle Mobiloils Chart of Recommendations for Tractors.

This Chart is the result of the most far-reaching and thorough study of tractor lubrication that has ever been made.

It was prepared by the Vacuum Oil Company whose authority on scientific lubrication for every class of machinery is recognized throughout the world.

It was prepared after a careful analysis of the lubricating requirements of practically every make and model of tractor made.

Harvest Time

Wheat must be harvested at just the right time. The tractor does the job quickly when that time arrives.

For years this Chart has been recognized as the scientific guide to correct tractor lubrication. Over a hundred of the leading tractor manufacturers in America recommend and endorse the use of Gargoyle Mobiloils as specified by the Vacuum Oil Company's Chart of Recommendations.

The superior efficiency of the oils specified has been thoroughly proved by practical tests.

Make a note of the grade of Gargoyle Mobiloils specified in this Chart for your tractor. Then make sure you get it.

You will then give your tractor an oil of the highest *quality* and of correct *body* and *character* for that engine. Its use will result in:

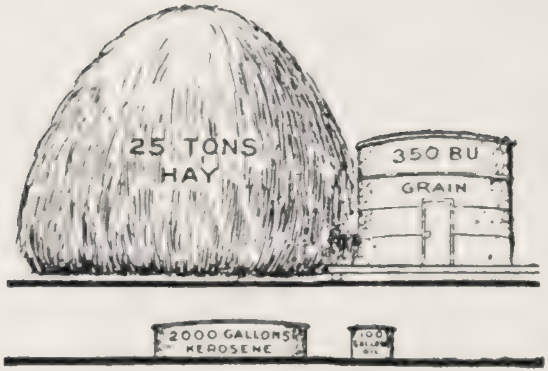
Maximum power
Minimum carbon deposit
Longer life for your tractor

Less frequent repairs
Saving of fuel
Saving of oil

Co-operation

Enormous acreage often calls for harvesting by teams of tractors. Farmers often pool their equipment.

Why the Crank-case Should Be Cleaned Frequently



Horse and Tractor Foods

Quite a difference between storing food for eight horses and their equivalent in power—one small tractor.

DO you now and then drain the lubricating oil from the crank-case of your engine and put in fresh oil?

This is one of the most important details in the efficient operation of your tractor and should be done at regular intervals.

Tractor manufacturers and service men alike emphasize its importance.

Upon examination of the old oil in the crank-case you will probably find that it has been thinned out in use. Chemical analysis would show a varying proportion of fuel in the oil, dependent upon the lubricating conditions of your engine and the length of time the oil has been allowed to remain in the crank-case.

Not infrequently, upon examination, the lubricating efficiency of the oil has been found to be seriously impaired.

Change in Character of Fuel

The principal reason for the increase of this trouble in recent years is the change in the character of the fuel in general use.

Present-day fuel is of heavier gravity and is less volatile than that formerly sold. It does not as readily saturate the air in carburetion and give as homogeneous or gaseous a mixture as is desirable. The heavier and less volatile the fuel, the greater the difficulty of mixing it with air in the correct proportions for combustion. There is, therefore, a greater possibility of fuel in liquid form being drawn into the combustion chambers or cylinders of the engine.

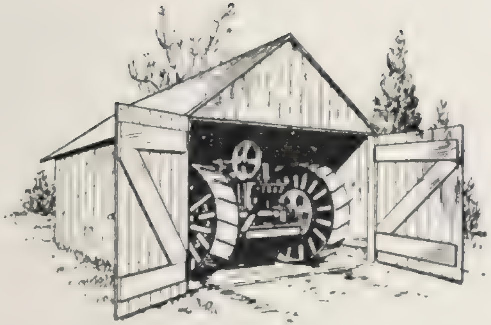
In starting the engine, particularly in cold weather, the use of the carburetor choker valve causes a considerable quantity of liquid fuel to be drawn into the combustion chambers or cylinders. If the cylinder or combustion chamber temperatures are lower than the temperature of the fuel mixture entering them a partial condensation occurs. Part of the fuel separates from the air as a liquid.

Lubricating Oil Thinned Out

This liquid fuel has a natural tendency to dilute or thin out lubricating oil with which it comes in contact. As the piston moves up and down within the cylinder, the liquid fuel in contact with the oil film on cylinders, pistons and piston rings partially cuts away this lubricating oil film.

The compression pressure on the compression stroke aids in forcing the compressed fuel charge down past the piston rings. Then the fuel charge and the liquid fuel mix with the lubricating oil in the crank-case and dilute it.

The amount of fuel which reaches the crank-case and mixes with the lubricating oil depends largely upon the correctness of the lubricating oil used and its ability to form and maintain a thorough piston-ring seal, which will prevent the escape of the fuel charge and liquid fuel past the piston rings into the crank-case.



Shelter Your Tractor

A machine as valuable as the farm tractor should not be exposed to the ravages of the elements.

When the gases or fuel have mixed with the lubricating oil in the crank-case they reduce the lubricating oil in body and considerably decrease its lubricating value. This results in:

1: An inefficient piston-ring seal with consequent high consumption of fuel and lubricating oil and loss of power.

2: Premature wear of cylinders, pistons, piston rings, and of crank-shaft, crank-pin and piston-pin bearings.

3: Excessive carbon deposits causing pre-ignition and laboring of the engine.

4: Burned-out bearings.

5: Poor compression.

6: Excessive accumulation of carbon sediment in crank-case.

Winter Jobs

Tractors are not idle all winter. This one is kept busy clearing away snow, cutting ice, and hauling it to the ice house.

To overcome these conditions it is of the utmost importance:

That the carburetor choker valve be used sparingly.

That the supply of used crank-case oil be frequently drained and replenished with a fresh supply; and

That the correct grade of lubricating oil be used to form and maintain an efficient piston-ring seal.

Tractor Engine Troubles

Their Causes and Remedies

The following suggestions may be of assistance in locating and remedying engine troubles. These suggestions are made to enable tractor operators to effect emergency repairs in the field. In all but the simplest cases, we recommend that the trouble be submitted to a competent service man for correction.

The points under the following subheadings have been arranged ,in so far as possible, in related groups.

For example, under the subheading Engine Refuses to Start, points 2 to 5, inclusive, deal with Ignition; points 8 and 9 with Compression, and points 6 and 10 with Fuel.

We recommend, in every case of trouble, that the operator look for the simplest causes and apply the simplest remedies first, working up progressively through the more complex.

Causes of Trouble	Remedies
ENGINE REFUSES TO START	
1: Ignition switch off.	1: Turn switch to starting position.
2: Battery run down.	2: Recharge storage battery or renew if necessary. Refill with distilled water every two weeks so that all plates are covered.
3: Broken electrical circuit.	3: Examine wiring for break. See that connections at binding posts are clean and tight.
4: Interrupted electrical circuit.	4: Lack of insulation may cause a ground connection or a short circuit. Rewind defective wiring with tape or renew wiring.

5: Fouled or broken spark plugs.	5: Clean fouled plug; replace broken plug.
6: Insufficient fuel supply.	6: Test for fuel supply at carburetor by flooding. Replenish supply in fuel tank.
7: Poor carburetion.	7: Mixture too lean or too rich. Adjust carburetor for correct mixture.
8: Poor compression.	8: Test compression by hand cranking. (a) The piston rings may be gummed or stuck in their recesses. Introduce about two tablespoonsful of kerosene through the priming cocks of each cylinder and allow it to remain overnight. This will free the rings. (b) Poor compression may result from leakage due to warped valve head or seat or incorrect valve timing. The corrections of these troubles should be entrusted to a service man. (c) Poor compression may be caused by a cracked spark-plug core. Renew spark-plug core or plug. (d) Poor compression may be due to dry cylinders. Renew supply of lubricating oil and crank by hand until action is free and compression restored. (e) Poor compression may be due to cylinder-head gasket being improperly fitted or defective. Fit properly or renew. (f) Due to use of oil unsuited in body to engine, resulting in incorrect piston-ring seal. Use correct oil.

9: Stuck inlet or exhaust valve.	9: Remove valve cap and free valve. See that valve push rod is adjusted so as to allow valve to seat properly. Examine valve spring; if weak or broken, renew.
10: Water in fuel.	10: Drain fuel tank and refill, straining fuel.
11: Air leak in intake manifold.	11: Test for leak with oil from oil can. Examine gaskets. Repair leaks and renew gaskets if broken.

ENGINE SMOKES

1: Oil of incorrect body to form correct piston-ring seal.	1: Use correct grade of Gargoyle Mobiloils. (See Chart on page 35.)
2: Too much oil.	2: Regulate oil supply.
3: Worn or broken piston rings.	3: Renew piston rings.
4: Piston rings stuck in recesses.	4: Free with kerosene. (See (a) under point 8 of Engine Refuses to Start, page 14.)
5: Racing of engine.	5: Adjust throttle stop at carburetor for slow engine speed when idling. Do not race engine when clutch or gears are disengaged.
6: Incorrect fuel mixture.	6: Result—black smoke from too much fuel. Adjust needle valve of carburetor to decrease fuel supply.

7: Metal carburetor float leaking.	7: Remove and repair float.
8: Cork carburetor float "water-logged."	8: Remove float, dry thoroughly and coat thinly with shellac.
9: Priming pin stuck.	9: Carburetor floods. Remove priming pin and strengthen spring.

REGULAR BUT WEAK EXPLOSIONS

1: Coil vibrator needs adjusting.	1: Test by elimination for defective action of any one or more units and see that platinum points are not loose, burned or worn. If they are, clean and adjust until plug connected with each unit sparks properly. If platinum points are badly burned or worn, renew.
2: Loose spark plugs or valve caps.	2: Tighten.
3: Valve leak.	3: Grind; adjust push rods.
4: Weak valve spring.	4: Strengthen by stretching—or renew.
5: Insufficient lift of exhaust valve.	5: See that there is only a slight space between bottom of valve stem and top of lifter when lifter is in lowest position and valve is on its seat.
6: Fuel mixture too "lean."	6: Too much air; too little fuel. Increase fuel supply by opening needle valve. Decrease air supply by adjusting air valve.

7: Fuel mixture too "rich."	7: Too much fuel; too little air. Increase air supply by adjusting air valve. Decrease fuel supply by adjusting needle valve.
8: Carburetor auxiliary air valve not working properly.	8: Regulate and adjust valve; see that spring has proper tension and that valve seat is clean.
9: Insufficient lubrication.	9: Refill lubricating system with correct grade of Gargoyle Mobiloils (see Chart on page 35), and crank by hand until engine is thoroughly lubricated.

ENGINE HISSING

1: Spark plug broken.	1: Renew plug.
2: Relief cock or priming cock open.	2: Close cock.
3: Cylinder-head gasket improperly fitted or defective.	3: Fit properly or renew.
4: Exhaust pipe loosely connected.	4: Tighten bracket bolts or, if necessary, renew gaskets.
5: Intake manifold leaks.	5: Examine for air leaks and repair.

6: Scored cylinder walls.	6: Due to (a) Broken piston rings. Rebore cylinders and renew rings. (b) No oil. Rebore cylinders and supply correct grade of Gargoyle Mobiloils. (See Chart on page 35.) (c) Insufficient lubrication. Rebore cylinders and renew rings, if necessary; supply correct grade of oil. (d) Foreign particles drawn in through carburetor or lubricating system. Rebore cylinders and renew rings, if necessary; clean engine and lubricating system.

IRREGULAR ACTION OF ENGINE

1: Cracked spark plug.	1: Renew plug.
2: Gap of spark-plug points incorrect.	2: Adjust to thickness of a post-card.
3: Defective wire insulation.	3: Rewind with tape or renew wiring.
4: Defective connections.	4: Clean and make fast connections to binding posts.
5: Poor contacts in timer.	5: Clean and make adjustments for strong contacts. If platinum points in breaker or magneto are worn or burned, file points to smooth surface and adjust so as to make a clean break. If badly worn or burned, renew platinum points.

6: Fuel mixture too "lean."	6: "Lean" mixture will be indicated by misfiring in the cylinders. Too much air; too little fuel. Increase fuel supply by opening the needle valve. Decrease air supply by adjusting air valve.
7: Fuel mixture too "rich."	7: "Rich" mixture will be indicated by misfiring in the cylinders. Too much fuel; too little air. Increase air supply by adjusting air valve. Decrease fuel supply by adjusting needle valve.
8: Intake manifold leaks.	8: Engine races. Examine for air leaks and repair.
9: Water in fuel tank.	9: Shut off fuel at tank. Disconnect fuel pipe at carburetor. Turn on fuel at tank and drain by drain-cock into a glass tumbler. If water is present it can be seen readily at bottom of glass. Drain until fuel is free from water.
10: Carbon on spark plugs.	10: Clean or replace plugs. Select correct oil to meet requirements of engine. (See Chart on page 35.) Adjust carburetor for correct mixture.
11: Insufficient fuel supply.	11: Replenish supply. See that "shut-off" cock in fuel line is wide open and that there are no leaks.
12: Fuel feed to carburetor partly stopped.	12: If carburetor will not flood readily shut off cock in fuel line at tank. Disconnect fuel pipe at carburetor. Open cock and note if there is a flow of fuel. If not, examine strainer in fuel line. If unobstructed, reconnect fuel pipe at carburetor and turn on from tank. If carburetor fills rapidly a clear line is indicated. Further, the jet of carburetor may be clogged, in which case remove needle valve and clean jet.

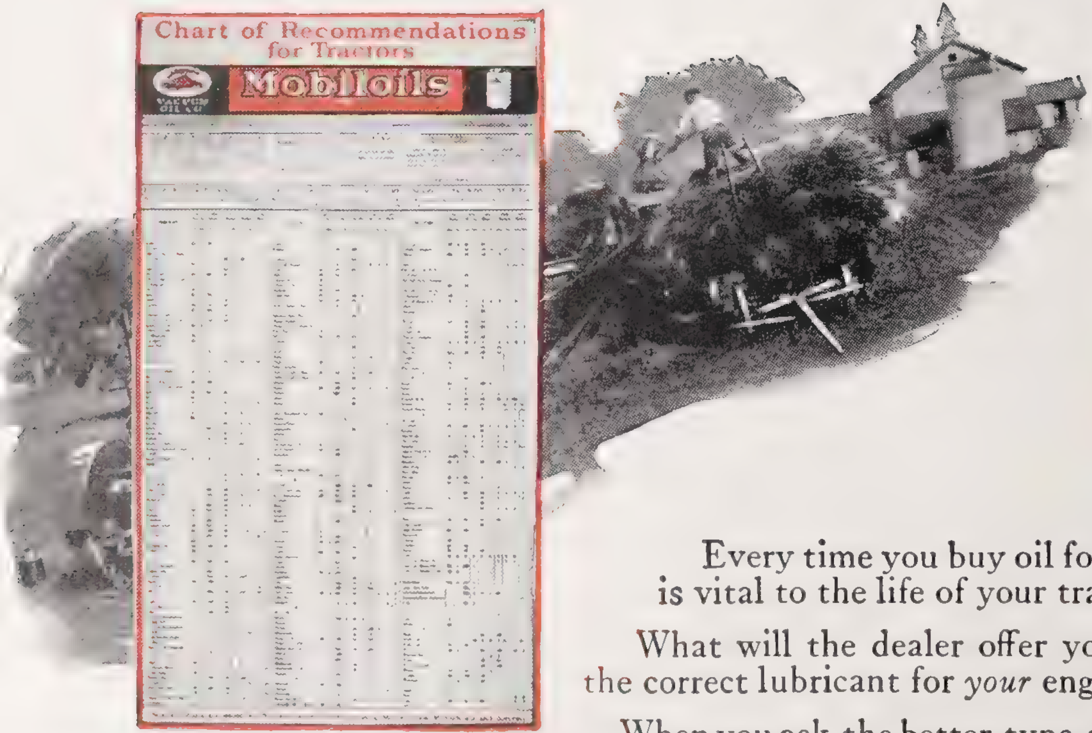


Chart of Recommendations for Tractors

Mobiloils

VACUUM OIL CO

Look for This Chart On Your Dealer's Wall

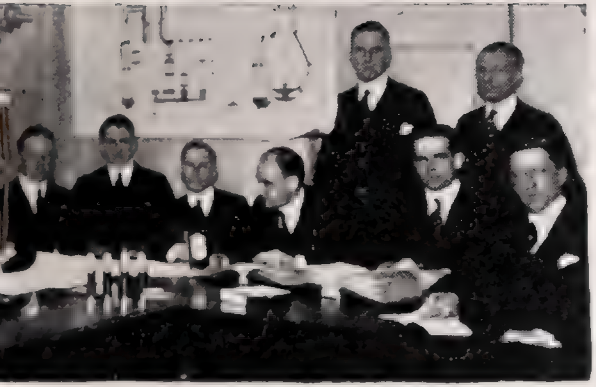
The Chart an

Make This Chart Your Guide

Every time you buy oil for your tractor you face a question which is vital to the life of your tractor.

What will the dealer offer you? Will it be just "oil"—or will it be the correct lubricant for *your* engine?

When you ask the better type of dealer for "oil," he asks you the make of your tractor—and the year's model. He turns to the Gargoyle Mobiloils Chart of Recommendations (shown here in miniature) and finds your tractor's make and model. Then he supplies you with the grade of



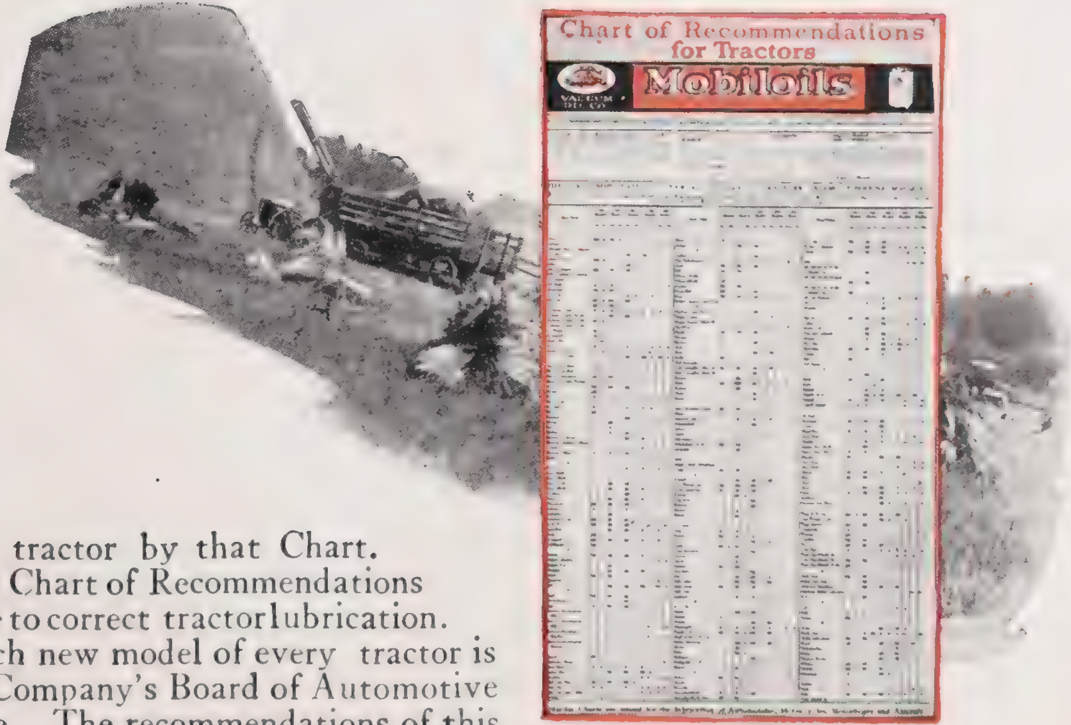


Chart of Recommendations for Tractors

Mobiloils

Look for This Chart On Your Dealer's Wall

d Its Makers

o Correct Tractor Lubrication

Gargoyle Mobiloils specified for your tractor by that Chart.

For years the Vacuum Oil Company's Chart of Recommendations has been recognized as the scientific guide to correct tractor lubrication.

In keeping this Chart up to date, each new model of every tractor is carefully analyzed by the Vacuum Oil Company's Board of Automotive Engineers, whose picture is shown above. The recommendations of this Chart are proved correct by *repeated practical tests*. Turn to the complete Tractor Chart on page 35 of this booklet. This Chart specifies the correct grade of Gargoyle Mobiloils for *your* tractor.

13: Water in fuel.	13: Affects ignition and combustion. Water in fuel retards supply at jet of carburetor. Treat as in case of obstructed jet opening as described in preceding paragraph.
14: Worn or broken piston rings.	14: Renew worn or broken rings. Use correct oil—an oil which will form a perfect piston-ring seal. (See Chart on page 35.)

ENGINE MISFIRING

1: Carbon on spark plugs.	1: Clean or replace plugs. Select correct oil to meet requirements of engine. (See Chart on page 35.) Adjust carburetor for correct mixture.
2: Insufficient fuel supply.	2: Replenish supply. See that "shut-off" cock in fuel line is wide open and that there are no leaks.
3: Fuel mixture too "lean."	3: Too much air; too little fuel. Increase fuel supply by opening needle valve. Decrease air supply by adjusting air valve.
4: Fuel mixture too "rich."	4: "Rich" mixture will be indicated by misfiring in the cylinders. Too much fuel; too little air. Increase air supply by adjusting air valve. Decrease fuel supply by adjusting needle valve.
5: Valve stuck.	5: Clean valve stem with kerosene.
6: Intake manifold leaks.	6: Examine for air leaks and repair.

ENGINE STOPS

1: Ignition switch off.	1: Turn switch on.

2: Broken electrical circuit.	2: Examine binding posts for loose connections. Examine wiring for poor insulation or break.
3: Spark-coil vibrator stuck.	3: Test by elimination for defective action of any one or more units and see that platinum points are not loose, burned or worn. If they are, clean and adjust until plug connected with each unit sparks properly. If platinum points are badly burned or worn, renew.
4: Contact in timer poor.	4: Clean and make adjustments for strong contacts of magneto. If platinum points in breaker or magneto are worn or burned, file points to a smooth surface and adjust so as to make a clean break. If badly worn or burned, renew.
5: Insufficient spark.	5: (a) Battery weak. Renew battery or recharge if necessary. (b) Magneto demagnetized. Remove and have remagnetized. (c) Magneto breaker points not properly adjusted. Adjust gap. (d) Coil vibrator improperly adjusted. Test by elimination for defective action of any one or more units and see that platinum points are not loose, burned or worn. If they are, clean and adjust until plug connected with each unit sparks properly. If platinum points are badly burned or worn, renew. (e) Spark-plug points improperly adjusted. Adjust gap between spark-plug points to a space of about the thickness of a post-card. Too wide or too small a gap will interfere with proper ignition.
6: No fuel.	6: Replenish supply and note that carburetor float chamber is full, i. e., flood by depressing priming pin.

ENGINE OVERHEATING

1: Over-retarded spark.	1: After starting, spark should be advanced as far as possible at all times unless engine labors.
2: Incorrect timing of valves.	2: The correction of this trouble should be left to a competent service man.
3: Throttled exhaust.	3: See that exhaust passages are clean and that exhaust valves raise sufficiently.
4: Clogged muffler.	4: Disconnect and clean out soot and products of incomplete combustion.
5: Clogged radiator.	5: Introduce cleaning compound into radiator and allow it to circulate while car is running from 50 to 100 miles. Then wash out thoroughly with clear water. Drain and refill.
6: Deficient water circulation.	6: (a) Test for clogging of radiator or water jackets. (b) Test for clogging of water hose. (c) Test water pump for delivery.
7: Fan not working.	7: Lubricate bearings and tighten belt.
8: Racing of engine on low gear.	8: Partially close throttle thereby decreasing speed of engine.
9: Continued use of low gear.	9: Use low gear *only when necessary*.
10: Lack of oil or incorrect oil.	10: Fill lubricating system with correct grade of Gargoyle Mobiloils (See Chart on page 35.)
11: Incorrect carburetion.	11: Adjust carburetor for correct mixture.

SLUGGISH ACTION OF ENGINE

1: Retarded spark.	1: Advance spark as far as possible without causing engine to labor.
2: Incorrect carburetion.	2: Too "rich" or too "lean" a mixture; adjust carburetor for correct carburetion.
3: Incorrect valve action or seating.	3: Examine for weak or broken valve springs; adjust push rods for free clearance between push rod and valve stem.
4: Incorrect lubricating oil.	4: Oil too light in body to seal piston rings. Oil too heavy to be readily distributed in lubricating system. Use correct oil. (See Chart on page 35.)

ENGINE KNOCKS

1: Spark advanced too far.	1: Retard spark advance lever on quadrant of steering wheel to prevent premature ignition. For further correction, if necessary, adjust spark advance rods.
2: Carbon deposit.	2: Results in pre-ignition. Remove accumulated carbon from combustion chambers and make sure that piston rings are free in their recesses. (See (a) under point 8 of Engine Refuses to Start, page 14.) The result of use of incorrect oil; excessive quantities working into combustion chambers; piston-ring seal not maintained. Use correct oil. (See Chart on page 35.)
3: Fuel mixture too "rich."	3: Reduce fuel feed by adjusting needle valve of carburetor. Adjust air valve for proper air mixture.
4: Loose bearings.	4: Have engine bearings fitted properly and tightened.

5: Worn bearings.	5: Refit or, if necessary, renew bearings.
6: Loose fly wheel.	6: Make fly wheel fast to shaft.
7: Cylinders loose on crank-case.	7: Tighten bolts and nuts.
8: Engine labors.	8: Change to lower gear.
9: Metal carburetor float leaking.	9: Remove and repair float.
10: Cork carburetor float "water-logged."	10: Remove float, dry thoroughly and coat thinly with shellac.
11: Priming pin stuck.	11: Carburetor floods. Strengthen spring of priming pin.

EXPLOSIONS IN MUFFLER

1: Over-retarded spark.	1: Advance spark for earlier ignition.
2: Insufficient spark.	2: (a) Battery weak. Renew battery or recharge if necessary. (b) Magneto demagnetized. Remove and have remagnetized. (c) Magneto breaker points not properly adjusted. Adjust gap between platinum points. (d) Coil vibrator improperly adjusted. Test by elimination for defective action of any one or more units and see that platinum points are not loose, burned or worn. If they are, clean and adjust until plug connected with each unit sparks properly. If platinum points are badly burned or worn, renew.

	(e) Spark plug defective. Renew plug. (f) Spark-plug points improperly adjusted. Adjust gap between spar-kplug points to a space of about the thickness of a post-card.
3: Fuel mixture too "weak."	3: Too much air; too little fuel. An unconsumed fuel charge is forced into muffler and this charge is fired by a subsequent charge. Adjust or clean carburetor so that proper fuel mixture for complete combustion is admitted into combustion chamber.
4: Exhaust valve stuck.	4: Remove valve cap and free valve in guide. Regrind valve if necessary. See that spring has proper strength.

OVERHEATED EXHAUST PIPE

1: Over-retarded spark.	1: Advance spark for earlier ignition.
2: Clogged muffler.	2: Disconnect muffler and remove soot and products of incomplete combustion.

The Twenty-Acre Oil Test

The One Real Test of Lubricating Oil Efficiency

A great difference in efficiency may exist between oils which *look* alike and *test* alike. An oil may meet every physical or laboratory test and still be an inefficient or incorrect lubricant.

The Test That Tells

A test on *your farm* will tell *you* more about the lubricating efficiency of an oil than any number of tests in some one's laboratory.

The following 20-acre test has never yet failed to prove the superiority of Gargoyle Mobiloils over other tractor lubricating oils.

Try This Test

You can easily make it with your own tractor and without interfering with your own work. This is the method:

(1) Find on the Chart the grade of Gargoyle Mobiloils specified for your tractor. Purchase a 5-gallon *sealed* can, being sure the correct grade is marked underneath the name.

(2) Pick out 20 acres of ground of uniform character and condition.

(3) With the oil you are now using plow the first ten acres. Note carefully oil consumed, fuel consumed, smoke from exhaust, engine heat and the pulling power of your tractor.

(4) The following day drain, clean and refill the oil system with the correct grade of Gargoyle Mobiloils. Plow the second ten acres. Again note fuel and oil consumption, smoke from exhaust, engine heat and pulling power.

You will find a striking difference in favor of Gargoyle Mobiloils.

You bought your tractor to make money. Scientific lubrication saves money in oil, fuel and wear, and makes money through developing maximum power.

The Complete Line of Gargoyle Mobiloils

For Engine Lubrication

Gargoyle Mobiloils are the result of long experience by experts in the science of lubrication. The following descriptions cover merely the general distinguishing characteristics of the different grades of Gargoyle Mobiloils.

The Chart of Tractor Recommendations, on page 35 in this booklet, specifies the correct grades for every make and model of tractor for the years 1916 to 1920 inclusive.

Gargoyle Mobiloil "A" (Medium Body)

A dark, amber-colored oil for lubrication of water-cooled engines requiring a rich lubricant. It holds its body under extreme heat.

Gargoyle Mobiloil "B" (Heavy Body)

For both air- and water-cooled engines where a heavy-bodied oil is required. It holds up compression under extreme heat. This oil is especially suitable for the lubrication of tractor engines.

Gargoyle Mobiloil "BB" (Medium-Heavy Body)

A dark ruby oil especially suitable for lubrication of tractor engines. It maintains compression and power under extreme heat.

Gargoyle Mobiloil Arctic (Light Medium Body)

A light-colored oil of intermediate body for both summer and winter lubrication of gas engines. Especially suitable for winter lubrication of gas engines when exposed to cold-weather conditions.

Gargoyle Mobiloil "E" (Light Body)

A straw-colored oil for lubrication of automobile engines where an oil of light body is required. It flows freely in cold weather. Particularly suited to Fords.

***Gargoyle Mobiloils "A," "B," "BB," "E," and Arctic are sold in the following containers: One-gallon can; one five-gallon can, cased; two five-gallon cans, cased; fifteen-, thirty-, fifty-five-gallon steel drums, with faucet; half-barrels** (wood); **barrels** (wood).*

For Steam Tractors and Steam Automobiles

Gargoyle Mobiloil "D"

A heavy oil for the lubrication of steam tractors and steam automobiles. Separates rapidly from condensed steam.

***Sold in the following containers: One-gallon can; one five-gallon can, cased; barrels** (wood); **half-barrels** (wood).*

Barrels average 50-55 gallons. Half-barrels average 28-30 gallons.

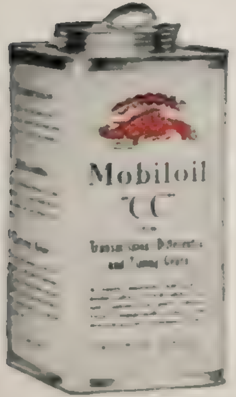
For prices, apply to any garage or dealer or to our nearest branch office.

For Transmission and Differential Lubrication

Gargoyle Mobiloil "C"

A heavy, dark fluid oil for transmission and differential lubrication, especially for ball- or roller-bearing types, as well as for timing gears and worm gears. It will follow, coat, cushion and thoroughly lubricate the gears, preventing unnecessary wear, allowing them to engage easily and operate without noise.

***Sold in the following containers:* *One-gallon can; one five-gallon can, cased; two five-gallon cans, cased; barrels* (*wood*); *half-barrels* (*wood*).**



Gargoyle Mobiloil "CC"

A heavy lubricant of dark, amber color, semi-fluid at operative temperatures. It will follow, coat, cushion and thoroughly lubricate the gears, preventing unnecessary wear and allowing them to engage easily and operate without noise. Its use is recommended where, with a fluid oil, leakage would occur from the transmission case or rear-axle housing.

Sold in the following containers:* *One five-lb. tin; one ten-lb. tin; one twenty-five-lb. tin, cased; two twenty-five lb. tins, cased; barrels; half-barrels.

For prices, apply to any garage or dealer or to our nearest branch office.

Mobilubricant

A High-Grade Grease

Mobilubricant is one of the best-known greases on the market.

It is a smooth, light-colored, medium-bodied grease, carefully strained in manufacturing, and free from all particles of insoluble and non-lubricating matter.

For packing the wheels, steering-gear housing, transmission, differential, universal joints and grease cups of tractors; for packing stuffing boxes of motor-boats; for lubricating farm machinery; for coating the bright parts of machinery and automobiles to prevent rust while not in use; for greasing guns and bullets, and for many other purposes.

Sold in the following containers: One-lb. tin; five-lb. tin; twenty-five-lb. tin; fifty-lb. tin; barrels; half-barrels

Motogrease—Autosponge

Motogrease is offered in three grades: Light, Medium and Heavy, for the lubrication of transmission and differential gears. Consistencies range from a soft, non-fluid grease for the Light, to the hard cup grease for the Heavy.

Autosponge is offered in two grades, Light and Heavy, for the lubrication of transmission and differential gears where a grease of fibrous consistency is preferred.

Sold in the following containers: One five-lb. tin; one twenty-five-lb. tin; one fifty-lb. tin; barrels; half-barrels.

For prices, apply to any garage or dealer or to our nearest branch office.

For Your Home Supply—Steel Drums

You can effect a real economy in the total operating cost of your tractor by purchasing Gargoyle Mobiloils in fifteen-, thirty-, and fifty-five-gallon steel drums. You will find the steel package a real convenience.

The air-tight, weather-proof construction of the drum keeps the oil clean and free from impurities and avoids oil waste.

By means of a reversible plug faucet, furnished free with every drum you can draw off just the quantity of oil required without waste or trouble. This faucet will be found on the reverse side of the vent plug.

Gargoyle Mobiloils "A," "B," "BB," "E" and Arctic are sold in the fifteen-, thirty-, and fifty-five-gallon steel drums.

Wooden Barrels and Half-Barrels

Gargoyle Mobiloils are also sold in wooden barrels and half-barrels. These packages offer you the economy of purchasing your season's supply at one time, thereby effecting a saving in the price per gallon. They enable you to have on hand at all times an adequate supply of the correct lubricant for your tractor and avoid loss of time and annoyance resulting from having to purchase small quantities at frequent intervals.

Barrels average 50-55 gallons. Half-barrels average 28-30 gallons.

For prices, apply to any garage or dealer or to our nearest branch office.

The VOCO-GUN

A New Handy Package for the Lubrication of Transmissions and Differentials

The correct lubrication of the transmission and differential is often neglected because of the difficulty experienced in filling and refilling these units.

The Voco-Gun, because of its simplicity and convenience, makes transmission and differential lubrication easy.

The outstanding features of the Voco-Gun are as follows:

1. It is leak-proof, and protects the contents from deterioration.

2. Due to its convenient size and shape, it can be manipulated in tight and inconvenient places.

3. The Voco-Gun is easy to operate. The turning of the small key at the bottom of the can ejects the contents in a steady stream, without slopping or spilling.

4. If the barrel of the Voco-Gun becomes dented in transit or in the tool kit, the plunger inside smooths out the unevenness as it passes the dent.

5. The Voco-Gun is absolutely non-refillable.

The Voco-Gun is sold in 3-pound packages (net) filled with Gargoyle Mobiloil "C."

Tractor Chart

The grades of Gargoyle Mobiloils for tractor-engine lubrication are specified in the Chart below.

For all tractors operated by steam, use Gargoyle Mobiloil "D" the year round.

For the lubrication of water-cooled stationary and portable farm and general-utility engines of gasoline- and kerosene-burning types, use Gargoyle Mobiloil "A" in summer and Gargoyle Mobiloil Arctic in winter. In special cases where one of these two grades of Gargoyle Mobiloils is suited for both summer and winter use, the correct oil will be indicated by a lubrication plate attached to the engine.

If air cooled, use Gargoyle Mobiloil "B" the year round.

Where different grades of Gargoyle Mobiloils are recommended for summer and winter use, the winter recommendation should be followed during the entire period when freezing temperatures are experienced.

TRACTORS	1920		1919		1918		1917		1916	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Acme	....	....	BB	A	BB	A	....	....	....	....
Albaugh-Dover (Square Turn)	....	....	....	....	....	....	BB	A	BB	A
Albert Lea	....	....	BB	A	..	....	....	....	....	....
Allen	....	....	....	....	....	....	BB	A	....	....
Allis-Chalmers (General Purpose)	A	A	A	A	A	A	....	....	....	....
" (All Other Mod.)	BB	A	BB	A	BB	A	BB	A	A	A
All Work	B	A	B	A	B	A	B	A	B	A
American	....	....	BB	A	BB	A	....	....	....	....
Andrews	....	....	....	....	....	....	B	B	A	A
Appleton	BB	A	BB	A	BB	A	BB	A	....	....
Atlas	....	....	BB	A	BB	A	....	....	....	....
Aultman-Taylor (18–36)	....	....	....	....	BB	A	BB	A	A	A
" " (22–45)	BB	A	BB	A	....	....	....	....	....	....
" " (15–30) (Waukesha Eng.)	BB	A	BB	A	....	....	....	....	....	....
" (All Other Mod.)	B	A	B	A	B	A	B	A	A	A
Automotive	A	A	BB	A	....	....	....	....	....	....
Auto-Tiller	....	....	A	Arc	....	....	....	....	....	....
Avery (5–10)	A	A	A	A	....	....	A	A	A	Arc
" Motor Cultivator & Planter	A	Arc	....	....	....	....	....	....	....	....
" (All Other Mod.)	B	A	B	A	B	A	B	A	B	A
Avery (Louisville)	....	....	....	....	....	....	BB	A	BB	A
Baby Savidge	BB	A	....	....	....	....	....	....	....	....
Bailor	A	A	A	A	....	....	....	....	....	....
Baker	B	A	....	....	....	....	....	....	....	....
Bates Steel Mule	B	A	B	A	B	A	B	A	....	....
Bean Track-Pull	B	A	A	A	A	A	A	A	....	....
Beaver (Canada)	BB	A	BB	A	BB	A	....	....	....	....
Beeman Garden Tractor	A	A	A	A	A	A	A	A	....	....
Belt-Rail	BB	A	BB	A	BB	A	BB	A	....	....
Besser	....	....	BB	A	....	....	....	....	....	....
Best (8-16)	....	....	....	....	....	....	A	A	A	A
" (All Other Mod.)	B	A	B	A	B	A	B	A	B	A
Bethlehem	....	....	BB	A	....	....	....	....	....	....
Big Bull	....	....	B	A	B	A	B	A	B	A
Blue "J"	BB	A	BB	A	....	A	....	....	....	....
Boenker	....	....	....	....	....	....	BB	A	B	A
Boring	....	....	....	....	BB	A	....	....	....	....
Bower City	....	....	....	....	B	A	B	A	B	A

TRACTOR CHART—*Continued*

TRACTORS	1920		1919		1918		1917		1916	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Brillion					B	A	BB	A		
Buckeye (Indiana), (Giant Baby)							B	A	B	A
" (All Other Mod.)							BB	A	BB	A
Buckeye (Ohio)	B	A	B	A	B	A	B	A	B	A
Bull Dog	BB	A								
Bulley							A	A	A	A
Burn Oil	B	A								
Canadian (Canada)	B	A	B	A						
Case (9–18)					A	A	A	A		
" (10–18)			BB	A						
" (10–20)					A	A	A	A	A	A
"(12–25 & 20–40)					BB	A	BB	A	B	A
" (15–27)	BB	A	BB	A						
" (All Other Mod.)	B	A	B	A			B	A	B	A
Challenge							BB	A	BB	A
Chase	BB	A	BB	A	BB	A	BB	A	B	A
Cletrac	BB	A								
Cleveland			BB	A	BB	A	BB	A		
Coleman	B	A	B	A	B	A	B	A		
Columbus					BB	A				
Common Sense	BB	A	BB	A	BB	A	BB	A	A	A
C.O.D			BB	A	BB	A	BB	A	A	Arc
Corn Belt					BB	A	BB	A	B	A
Craig	BB	A	BB	A						
Creeping Grip			BB	A	BB	A	BB	A	B	A
Cultitractor			BB	A	E	E				
Dakota	BB	A	BB	A	BB	A	BB	A	B	A
Dakota King					BB	A				
Decker (Canada)	BB	A								
Denning					BB	A	BB	A	BB	A
Depue	BB	A	BB	A	BB	A				
Dixie Ace (11–20)	BB	A								
" " (15–30)	B	A								
Do-It-All	B	A								
Eagle	BB	A	BB	A	BB	A	BB	A	A	A
Ebert-Duryea							BB	A		
E.F.T	BB	A								
Elgin			B	A	BB	A	BB	A		
E.B. (9–16)			B	A	B	A				
" (Reeves)	B	A	B	A	B	A	B	A	A	A
"(All Other Mod.)	A	A	A	A	A	A	A	A	A	Arc
Essex	BB	A								
Fageol			BB	A						
Farm Horse	B	A	B	A	B	A	B	A	B	A
Farmer Boy					BB	A	BB	A	BB	A
Farquhar									A	Arc
Fitch Four Drive	B	A	BB	A	BB	A	BB	A		
Flour City (20–35)	B	A	B	A	B	A	B	A	A	Arc
" (All Other Mod.)	B	A	B	A	B	A	B	A	B	A
Fordson	BB	A	BB	A	BB	A				
Fox River	B	A	B	A						
Frick (12–25)	B	A	B	A	B	A				
" (15–30)	BB	A								
Fulton			BB	A	BB	A	BB	A		
Galloway	B	A	B	A	B	A	BB	A		
Gas Pull					B	A	B	A	B	A
Gehl			BB	A	BB	A	BB	A		
Gile			BB	A	BB	A				
Gilson (12–25)			B	A						
" (15–30)			BB	A						
G-O	BB	A	BB	A						
Graham Brothers	B	A	BB	A	BB	A				
Grain Belt	BB	A	BB	A	BB	A	BB	A		
Gray	BB	A	BB	A	BB	A	BB	A	B	A

TRACTOR CHART—*Continued*

TRACTORS	1920		1919		1918		1917		1916	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Great Western	BB	A								
G. M. C. Samson Sieve Grip					B	A				
Hackney Auto Plow					B	A	BB	A	A	A
Happy Farmer					B	A	B	A	B	A
Hart Parr	B	A	B	A	B	A	B	A	B	A
Heider	BB	A	BB	A	BB	A	BB	A	B	A
Herbert							BB	A		
Hession			B	A						
Hicks	BB	A	B	A						
Hoke							BB	A	BB	A
Hollis			BB	A						
Holt Caterpillar (Model 18)							BB	A		
" (Model 45)	BB	A	BB	A	BB	A	BB	A	BB	A
" (All Other Mod.)	B	A	B	A	B	A	B	A	B	A
Holton	A	A	A	A						
Hoosier					BB	A				
Huber	BB	A	BB	A	BB	A	BB	A	B	A
Hudson	BB	A	BB	A	BB	A				
Hume							BB	A	B	A
Huron							BB	A		
Ideal (Canada)			BB	A	BB	A				
Ideal (Michigan)	B	A	B	A						
Illinois	B	A	B	A	B	A	A	A		
Imperial Forty					B	A	B	A	B	A
Imperial (Seaforth, Can.)	B	A								
Independent							BB	A		
Indiana	A	A	A	A						
Ingeco					A	A	A	A	A	A
International (8-16)	BB	A	A	A	A	A				
" (15-30)	BB	A	BB	A	BB	A				
Invincible					BB	A				
Joliet									A	A
J. T.	B	A								
Junior Ideal (Brantford, Can.)			BB	A	BB	A				
Kardell	BB	A	BB	A	BB	A	BB	A	BB	A
Kaws	BB	A								
K. C. Prairie Dog	BB	A	BB	A	BB	A	BB	A	B	A
Keck-Gonnerman			BB	A	BB	A	BB	A		
Kenison	BB	A	BB	A	BB	A				
King Seed							BB	A		
Kinkead							BB	A	B	A
Kinnard					B	A				
Klumb	B	A	B	A	BB	A	A	A		
Knickerbocker, Jr	A	A								
Knudsen	B	A								
La Crosse	B	A	B	A						
Lang	B	A	B	A	BB	A				
Lauson	BB	A	BB	A	BB	A	B	A		
Lawter							BB	A	B	A
Leader (Model N)	B	A								
" (All Other Mod.)	BB	A	BB	A	BB	A			A	A
Lenox American							BB	A		
Leonard			BB	A	BB	A				
Liberty	B	A	B	A	B	A				
Lightfoot			BB	A	BB	A				
Line-Drive							BB	A		
Linn	A	A	A	A						
Lion					BB	A	BB	A	B	A
Little Bear	A	A	A	A						
Little Chief					BB	A	BB	A	BB	A
Little Giant	BB	A	BB	A	BB	A	BB	A	A	A

TRACTOR CHART—*Continued*

TRACTORS	1920		1919		1918		1917		1916	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Little Oak									A	A
Lombard (Mod. H)	BB	A								
"(All Other Mod.)	B	A	B	A	B	A	B	A	B	A
Macdonald (Stratford, Can.)	BB	A								
Magnet	BB	A								
Market Garden	B	B	B	B						
Massey Harris (Toronto, Can.)	BB	A	BB	A						
Master					BB	A	BB	A		
Maxim			B	A						
Maytag							BB	A	BB	A
Merry Garden	A	A	A	A						
Minneapolis	B	A	B	A	B	A	B	A	B	A
Mobile One-Man	A	A								
Mogul (8-16)					A	A	A	A	A	A
" (All Other Models)			BB	A	BB	A	BB	A	BB	A
Moline Universal	BB	A	BB	A	BB	A	BB	A	BB	A
Monarch	BB	A								
Monighan	B	A	B	A	B	A				
Morton					BB	A				
Motox	BB	A			BB	A				
Multipedal (No. 15)							BB	A		
" (No. 35)							B	A		
Muncie					BB	A				
Muncie Square Turn			BB	A						
National			BB	A	BB	A				
Neverslip (20-12)			B	A	B	A	BB	A		
" (30-18, 10-6)			BB	A	BB	A				
" (All Other Mod.)					B	A				
New Age			BB	A	BB	A	BB	A		
New Britain	BB	A								
NewEra (Winnipeg, Can.)			B	A						
New Era Wisconsin (Winnipeg, Can.)	B	A								
Nichols & Shepard	BB	A	BB	A	BB	A	BB	A	A	Arc
Nilson	BB	A	BB	A	BB	A	BB	A	B	A
Ohio									A	A
Oil Pull (14-28, 10-20)					BB	A				
" (12-20, 16-30)	B	A	BB	A						
" (20-40)	B	A	BB	A	BB	A				
" (All Other Mod.)	B	A	B	A	B	A	B	A	B	A
Oliver	BB	A	BB	A	B	A	B	A		
Once Over	BB	A								
Oneman							BB	A		
Pan	B	A								
Parrett	B	A	BB	A	BB	A	BB	A	A	A
Peoria (8-20)					BB	A	BB	A	A	A
" (12-25)	B	A	B	A	B	A				
Phoenix Centipede					BB	A	BB	A		
Pioneer	B	A	B	A	B	A	B	A	B	A
Plow Boy							BB	A	BB	A
Plowman	BB	A	BB	A	BB	A	BB	A	BB	A
Pontiac							B	A		
Porter	BB	A	BB	A						
Port Huron			B	A						
Post	BB	A								
Powell	B	A								
R. & P.	BB	A	BB	A	BB	A				
Reed	BB	A	BB	A			BB	A		
Reliable	B	A	B	A						
Rex	BB	A								

TRACTOR CHART—*Continued*

TRACTORS	1920		1919		1918		1917		1916	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Royer	B	A	B	A	B	A	....	....	....	....
Rumely (8-16)	....	....	....	....	BB	A	BB	A	BB	A
" (12-24)	....	....	....	....	B	A	B	A	A	A
Russell (Giant)	B	A	B	A	B	A	B	A	A	Arc
" (All Other Mod.)	BB	A	BB	A	BB	A	BB	A	A	Arc
St. Paul	....	....	....	....	....	....	....	....	A	A
Samson	BB	A	BB	A	....	....	....	....	....	....
Sandusky	BB	A	BB	A	BB	A	BB	A	A	A
Savidge	BB	A	....	....	....	....	....	....	....	....
Sawyer-Massey (Hamilton, Can.)										
(11-22)	B	A	B	A	....	....	....	....	....	....
" (All Other Mod.)	BB	A	BB	A	....	....	....	....	....	....
Sexton	....	....	....	....	....	....	BB	A	....	....
Shelby (Model C)	BB	A	....	....	....	....	....	....	....	....
" (Model D)	B	A	....	....	....	....	....	....	....	....
Short Turn	BB	A	B	A	B	A	B	A	B	A
Sieve Grip	....	....	....	....	....	....	B	A	B	A
Simplex	....	....	....	....	B	A	B	A	A	Arc
Square Turn (15-30)	....	....	....	....	BB	A	....	....	....	....
" " (18-35)	B	A	B	A	B	A	....	....	....	....
Standard	BB	A	BB	A	BB	A	BB	A	BB	A
Steel Mule	....	....	....	....	....	....	....	....	B	A
Stinson	BB	A	BB	A	BB	A	B	A	....	....
Stone	BB	A	BB	A	BB	A	....	....	....	....
Stover	....	....	....	....	....	....	....	....	B	A
Strait	....	....	....	....	BB	A	BB	A	B	A
Strite	....	....	B	A	BB	A	BB	A	B	A
Sunflower	....	....	....	....	....	....	BB	A	....	....
Sweeney Iron Horse	....	....	....	....	....	....	BB	A	A	A
Texas	BB	A	....	....	....	....	....	....	....	....
Thorobred	BB	A	....	....	....	....	....	....	....	....
Tillermobile	B	B	....	....	....	....	....	....	....	....
Tioga	BB	A	....	....	....	....	....	....	....	....
Titan	BB	A	BB	A	BB	A	BB	A	BB	A
Tom Thumb	....	....	....	....	....	....	BB	A	A	A
Topp-Stewart	BB	A	BB	A	BB	A	....	....	....	....
To-Ro	A	A	A	A	....	....	....	....	....	....
Townsend	B	A	B	A	....	....	....	....	....	....
Traylor	A	A	....	....	....	....	....	....	....	....
Triumph	BB	A	....	....	....	....	....	....	....	....
Trenam	....	....	BB	A	....	....	....	....	....	....
Trundaar	BB	A	BB	A	BB	A	....	....	....	....
Turner Simplicity	BB	A	BB	A	BB	A	BB	A	....	....
TwinCity (Mod. 15)	....	....	....	....	....	....	....	....	A	A
" (Model 16)	....	....	BB	A	BB	A	....	....	....	....
" (Model 12-20)	BB	A	BB	A	....	....	....	....	....	....
" (Model 20-35)	BB	A	....	....	....	....	....	....	....	....
" (All Other Mod.)	B	A	B	A	B	A	B	A	B	A
Uncle Sam	BB	A	BB	A	BB	A	....	....	....	....
Union Sure Grip	....	....	....	....	BB	A	....	....	....	....
Universal	BB	A	BB	A	BB	A	BB	A	BB	A
U. S.	....	....	....	....	BB	A	....	....	....	....
Utilitor	A	A	A	A	....	....	....	....	....	....
Vail	....	....	....	....	B	A	B	A	B	A
Velie	....	....	B	A	A	A	....	....	....	....
Victory	BB	A	BB	A	BB	A	....	....	....	....
Vim	BB	A	....	....	....	....	....	....	....	....
Waite	....	....	....	....	....	....	BB	A	BB	A
Wallis	BB	A	....	....	....	....	....	....	....	....
" Cub	....	....	....	....	B	BB	B	BB	A	Arc
" " (Junior)	....	....	BB	A	BB	A	....	....	....	....
Ward	....	....	BB	A	....	....	BB	A	BB	A
Waterloo Boy	A	A	A	A	A	A	A	A	B	A
Weber	....	....	....	....	....	....	BB	A	BB	A

TRACTOR CHART—*Continued*

TRACTORS	1920		1919		1918		1917		1916	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Webfoot	BB	A	....	....	....	....	....	....	....	....
West'n (Tulsa, Ok.)	....	....	....	....	....	....	BB	A	BB	A
" (Wichita, Kan.)	B	A	B	A	B	A	....	....	....	....
Wetmore	BB	A	....	....	....	....	....	....	....	....
Wharton Pull	B	A	....	....	....	....	....	....	....	....
Wheat	....	....	B	A	....	....	....	....	....	....
Whitney	BB	A	BB	A	BB	A	A	A	....	....
Wichita	BB	A	BB	A	BB	A	BB	A	....	....
Wilson	A	A	....	....	....	....	....	....	....	....
Wisconsin	B	A	B	A	B	A	BB	A	....	....
Wolverine	....	....	BB	A	....	....	....	....	....	....
Yankee	B	A	B	A	B	A	....	....	....	....
Yuba (Model 12)	....	....	A	A	....	....	....	....	....	....
" (All Other Mod.)	....	....	BB	A	BB	A	BB	A	A	A

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